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Part III: Clinical Departments and Divisions --- Chapter 15: Division of Nephrology (pages 357-361)

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Division of Nephrology

MICHAEL L. SIMENHOFF, M.D.

“It is no exaggeration to say that the composition of the blood is determined not by what the mouth takes in but by what the kidneys keep.”

—HOMER W. SMITH (1895–1962)

Early Nephrology at Jefferson

Nephrology has been relatively a latecomer to the disciplines of medicine as a whole. The major impetus came from the development of an artificial kidney by William Kolff, M.D., in Holland during World War II. This advance in turn derived from a series of technological steps, the first of which was the use by Abel, Rountree, and Turner in 1913 of hemodialysis to remove urea in dogs. The organization of Nephrology into a separate Division of the Department of Medicine began at Jefferson only in 1962 when Laurence G. Wesson, Jr., was appointed Professor of Medicine and Head of the Division of Nephrology. Before this, in the late 1950s and early 1960s, Dr. James E. Clark (Jefferson, 1952) had acquired an artificial kidney for hemodialysis in order to study adrenal problems, but this machine was soon commandeered to treat ill patients with acute renal failure. He held together the loose discipline of renology alone with the services of a small supplementary laboratory adjacent to the room that housed the artificial “kidney unit.” Although peritoneal

dialysis had been performed a few times in the 1950s, it was not an established procedure for use in acute renal failure.

Dr. Clark (Figure 15-1), together with Dr. John Y. Templeton III, (Jefferson, 1941), explored the use of isolated intestinal loops as an alternative functioning membrane to rid the body of uremic toxins, fluid, and electrolytes. A generous grant was obtained from the John A. Hartford Foundation for this study, and Dr. Miles H. Sigler, Associate Professor of Medicine, became involved in the kinetics of sodium and glucose transport across the intestinal membrane. Dr. Herbert E. Cohn (Jefferson, 1955), Associate Professor of Surgery, perfected the surgical techniques for creating the isolated small intestinal loops in man and continued the study. It soon became clear, however, that the intestinal mucosa was much too discriminating a barrier for dialysis. Uremic toxins other than urea and sodium could not be removed adequately, and uremic patients with loops came to need hemodialysis as much as patients without loops. In order to keep loop patients well enough to permit studies, a chronic

dialysis unit had to be created within the Hartford Foundation research program. Just as one research program had led to the establishment of the earlier acute dialysis unit, so another research program now led to the creation of a chronic dialysis unit.

Dr. Wesson (Figure 15-2) had been recruited from the New York University Graduate School of Medicine. He had spent 15 years in close collaboration with Dr. Homer Smith, one of the pioneers of Physiological Nephrology, and himself had been instrumental in developing the concept of osmolar and free water clearance by the kidney. There was much enthusiasm in the arrival of Dr. Wesson to develop a superior nephrology program, particularly with the presence of the Clinical Research Center as well as available space and funds. Dr. Joseph Letteri was appointed Research Fellow in Medicine in January of 1962 to further this project.

Dr. Clark continued as the major renal clinician and gradually dissociated himself from his previous private partnership practice because of the time commitments to the nephrology program. He was supported by the dialyzer and research funds to

obtain a technician. No one at Jefferson had special training or extensive experience related to renal problems beyond that of a general internist except Dr. F.W. Sunderman, Sr., who headed a small unit recognized as a chemical section but not a Division of Medicine. He was often asked to consult on electrolyte, water, and acid-base problems. There was no teaching program, resident rotation, or student elective featuring the kidney as a discipline until Dr. Michael Simenhoff joined the Division in 1964. Simenhoff was recruited from Dr. John Merrill's program at the Peter Bent Brigham Hospital. As Assistant



FIG. 15-1. James E. Clark, M.D., a pioneer at Jefferson in clinical nephrology and hemodialysis in the late 1950s.



FIG. 15-2. Laurence G. Wesson, Jr., M.D., Professor of Medicine and First Head of the Nephrology Division (1962).

Director of the Clinical Research Center, he developed investigative studies in the diurnal rhythm of kidney function with Dr. Wesson. The Division was initially Renal Diseases in Fluid and Electrolyte Metabolism, next changed to Renal Disease, and finally to Nephrology in 1966.

It is germane to put nephrology in perspective in Philadelphia in 1962 when the Division of Nephrology at Jefferson was initiated. Clinical nephrology was still part of General Internal Medicine. Kidney-related research at the University of Pennsylvania was mainly out of Dr. Russell Elkinton's chemical section, where Dr. Miles Sigler took a research fellowship. Dr. Lewis W. Bluemle, Jr., destined to become the President of Thomas Jefferson University in 1977, was an outstanding pioneer in nephrology at the University of Pennsylvania from 1946 to 1968, during which time he authored or coauthored 46 articles in this field. Hahnemann Medical College had a renology section headed by Dr. Albert N. Brest, who subsequently came to Jefferson as Director of Cardiology. Neither Woman's Medical College (later Medical College of Pennsylvania) nor Temple Medical School had anything going in the line of nephrology. This paucity of nephrology services in the early 1960s soon changed, and nephrology as a subspecialty developed rapidly in many of the community as well as university hospitals.

At this time, there was an institutional move to obtain a general clinical research center for Jefferson. A committee of Drs. Wise, Sodeman, Gibbon, and Cantarow directed this effort but could find no candidate for Director. Because of Dr. Wesson's reputation he was urged to accept the position in addition to his responsibilities as Director of the Division of Nephrology.

Around 1964, Dr. Herbert Cohn became interested in renal transplantation, and a few were performed, but there was no major institutional commitment in this area. Later, in 1972, Dr. Harry Goldsmith, Chairman of the Department of Surgery, recruited Dr. James Colberg as Chief of the surgical arm of the transplantation program.

■ Refinement of Dialysis Technology

With the departure of Dr. Clark in 1968 to become the Chief of Medicine at Crozer Chester Hospital, Dr. Norman Lasker came to Jefferson in 1969 as Director of the Dialysis Unit. Dr. Lasker continued the development and expansion of the Unit and introduced new dialysis technologies and services, particularly in the area of peritoneal dialysis. Together with Dr. Bruce E. Jarrell (Jefferson, 1973), a peritoneal dialysis cyclor was developed. Patients could thus be dialyzed while they were sleeping at night with an automated system. In 1971 the Clinical Research Center was discontinued, and many of the clinical investigative programs carried out in the Center had to be abandoned. In 1971, Dr. James F. Burke, Jr. (Jefferson, 1966) (Figure 15-3) was appointed to the faculty to assist Dr. Lasker in the dialysis program. In 1973 the Tsaltas dialysis unit with six beds was established, which was responsible for approximately 2,000 dialyses per year. Dr. Theodore Tsaltas, who was Professor of Pathology at Jefferson, had been a patient on chronic dialysis and the Center was named in his honor.

The Early Renal Transplantation Program

At this time, Dr. James E. Colberg was appointed to head the surgical arm of the transplant program. Dr. Steven Bulova was also appointed to run the tissue typing laboratory and perform the mixed lymphocyte cultures, procedures that were then important in selecting donors for renal transplantation. In those years approximately ten transplants were performed per year.

Prior to Dr. Lasker's coming, in the late 1960s an electron microscopy unit was set up with Dr. Serge W. Duckett in neuropathology. Soon after, Dr. Ruth P. Gottlieb, a pediatric nephrologist in the Department of Pediatrics and active in the nephrology programs, established a fluorescent microscopy laboratory so that these techniques could be used to detect antibody deposition in renal tissues. Thus at this time renal biopsy services incorporated light, electron, and fluorescent microscopical analysis, and wide-range diagnostic services became available.

In 1973 to 1974, while Dr. Michael Simenhoff was on sabbatical leave in London studying amine

metabolism in uremia at the laboratories of Dr. Malcome Milne at Westminster Hospital Medical School in the University of London, Dr. Laurence Wesson decided to resign his position as Director. On his return, Dr. Simenhoff as made Acting Director, and Director in July 1975. At this time Dr. Anatole Besarab joined the Division with a secondary appointment in the Department of Physiology. Dr. Besarab had been trained under Dr. Franklin Epstein, an internationally known nephrologist at Harvard Medical School, where Dr. Besarab had learned the technique of perfusing isolated rat kidney under various physiological and pathophysiological conditions. Dr. Besarab's expertise, together with Dr. Wesson's background in this area, led to National Institutes of Health funding. Dr. Besarab studied the interrelationship of calcium, parathyroid hormone, and cyclic AMP, and also made contributions in the better understanding of transplantation nephropathy. This, combined with Dr. Simenhoff's funding for the production of carcinogenic nitrosamines in patients with chronic renal failure, also now funded by NIH, and Dr. Wesson's continued Career Award from the National Institutes of Health, gave the Division a solid base of support for basic research in the Division. Dr. Wesson continued his research studies on the preservation methods of the isolated kidney.



FIG. 15-3. James F. Burke, Jr., M.D., Professor of Medicine; nephrologist for renal transplantation program.

■ Growth of Renal Transplantation

The transplantation program accelerated with the recruitment of Dr. Bruce E. Jarrell in 1980. Dr. Jarrell's background in engineering had already facilitated contributions to the development of the cycling peritoneal dialysis machine previously mentioned, and his ability and enthusiasm gave new life to what had been a stagnant transplantation program. With Dr. James Burke as the nephrology arm of the program and Dr. Jarrell on the surgical side, the transplantation program grew vigorously, with physician referrals statewide and from nonaffiliated hospitals. With participation of Dr. Besarab many clinical studies were performed in the transplantation field, and at the basic level Dr. Jarrell was funded for studies on the role of the endothelial cell in transplantation rejection. The number of transplants per year rose to 80.

As the clinical services continued to grow in the 1980s it became essential to recruit additional personnel. Dr. Norman Lasker had left Jefferson in 1979 to take up an appointment as head of the Division of Nephrology at the New Jersey College of Medicine in Newark. Dr. Burke became head of the Dialysis Unit, but with the growing transplantation program, it became clear that the Division needed a full-time dialysis director apart from the transplantation group.

Dr. Nancy B. Jermanovich was recruited in July of 1982 to bolster the clinical services but mainly to develop a program in experimental glomerulonephritis, an area that had not been previously developed. With the emphasis on dialysis and with more than 60 percent of patients on chronic dialysis (having glomerulonephritis as the etiology of the renal disease), it was felt that this was an important area for the Division to develop. Dr. Jermanovich came from New York State University at Syracuse and had been trained by Dr. William Couser at Boston University during her fellowship. Arrangements had been made with the Department of Biochemistry to interdigitate her interests in immunology with those of the Department of Biochemistry.

Soon after this, Dr. George C. Francos (Jefferson, 1978), who had come through the Jefferson ranks, including a Fellowship, was appointed to the Division and to be the Director of the chronic dialysis program. The dialysis program was still growing, and the facilities at the Health Science Building on Ninth and Sansom Streets containing 12 stations for three daily shifts had already become cramped. Both hemodialysis and peritoneal dialysis modalities were offered, with emphasis on in-Center hemodialysis and continuous ambulatory peritoneal dialysis (CAPD).

The history of the nephrology programs at the affiliated hospitals was one of gradual independence, so that each of them acquired free-standing independent nephrology units. Earlier, intermittent involvement at Jefferson by Dr. Miles Sigler (Lankenau Hospital), Dr. John T. Magee (Jefferson, 1957; Bryn Mawr Hospital), Dr. Robert B. Flinn (Wilmington Medical Center), and Dr. John P. Capelli (Jefferson, 1962; Our Lady of Lourdes Hospital) had resulted in independent units of high caliber. This was beneficial in the teaching of Jefferson medical students and house officers when they rotated through these affiliated hospitals. The affiliated nephrology programs became important sources for transplantation referral.

Progress in the prevention and treatment of renal diseases has not only saved lives but provided a normal life span for many of its unfortunate victims.



Division of Medical Oncology

WILLIAM E. DELANEY, M.D.

“While there are several chronic diseases more destructive to life than cancer, none is more feared.”

—CHARLES H. MAYO (1865–1939)

ALTHOUGH medical oncology was first officially recognized as a medical subspecialty by the American Board of Internal Medicine in 1972, a formal Division of Medical Oncology in the Department of Medicine at Jefferson had been established since 1961. The first Director (1961–1970) was Arthur Weiss, M.D. (Figure 16-1), and the second (1970–1980) was Chester Southam, M.D. (Figure 16-2). Acting Directors were William E. Delaney, M.D. (Jefferson, 1953; 1980–1981) and J. Frederick Laucus, M.D. (Jefferson, 1967; 1981–1984). The third Director is Michael J. Mastrangelo, M.D., appointed in 1984.

The major activities of the Division since its inception have been patient care, teaching, research, and the training of medical oncology Fellows. Among the latter, the first Fellows were Laird Jackson, M.D., who was the first National Institutes of Health Postdoctoral Fellow (1961–1962), and Harvey Brodovsky, M.D. (1961–1963). Several additional Fellows have served in the

Division since that time, most notably Carla Goepp, M.D. (Figure 16-3), (1965–1967), who became Associate Dean of Student Affairs and Director of the Office of Student Counseling and Career Planning, and Michael J. Mastrangelo, M.D. (1968–1970). Significant accomplishments in cancer care, research, and teaching at Jefferson occurred in the years before the establishment of the Division.

The Tumor Clinic and Elizabeth Storck Kraemer Foundation

The Tumor Clinic was informally begun in 1928 and has continued since that date as the major institutional follow-up mechanism for cancer patients. Formal establishment began in the fall of 1929 when, through the auspices of William H. Kraemer, M.D. (Figure 16-4, Jefferson, 1906),